


Steel Bars

Cold Finished & Hot Rolled Bar Products

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 **WARNING:** These products can potentially expose you to chemicals including Nickel, Chromium, Lead, Cobalt, Mercury and Beryllium, which are known to the state of California to cause cancer and/or birth defects or other reproductive harm. For more information, visit www.P65Warnings.ca.gov

Cold Finished Carbon Bars

Grades and Descriptions

Cold Finished Bars are produced from Special Bar Quality Hot Rolled Bars by cold drawing, turning or grinding or by a combination of these methods. The cross sectional area of the hot rolled bar is cold reduced, resulting in accurate size, smooth surface, increased mechanical properties and machinability.

1018 is a general purpose low carbon steel with good case hardening qualities. It is especially suited to cold forming and bending operations. Material is suitable for parts which require cold forming (such as crimping, swaging, or bending). For severe bends, however, stress relieving may be necessary to prevent cracking.

1045 is a medium carbon steel used extensively in induction hardening applications. This is not normally considered a screw machine steel and is only fair for brazing and welding. However, it can be forged satisfactorily and is the most common shafting steel in the medium carbon range.

1117 is a low carbon, high manganese steel. Machinability is improved over 1018, and case hardening is deep and uniform, supported by a tough ductile core.

11L17 is a resulfurized steel with good machinability and surface finish. The product is made much the same way as 12L14 where the lead does not alloy with the steel. Lead is retained in its elemental state and is dispersed within the steel's structure allowing chips to break off easier during machining.

1141 is a medium carbon, special quality, manganese steel, with improved machinability and better heat treatment response. Surface hardness is deeper and more uniform than plain carbon steels.

1144 is a resulfurized carbon steel containing manganese and sulphur to provide a free-machining steel. It is recommended especially for high-production automatic machine products and machined parts requiring higher strength and wear resistance than is possible with lower carbon steels.

A311 Class B, includes Stressproof®, is a medium carbon free machining steel that has been severely cold reduced to improve its mechanical properties. Its inherent strength, without heat treatment, is comparable to heat treated steels of equal hardness. This permits direct use of many parts following the last machining operation, without the necessity of a further hardening treatment.

12L14 is considered to be one of the fastest machining steels currently produced. This has been achieved through the addition and even dispersal of tiny lead particles throughout the bar. C12L14 gives a smooth, machined surface and because of its low friction component allows increased tool life. This grade is recommended for high-speed automatic screw machine parts.

1215 is one of the most popular screw stocks marketed today. C1215 provides good surface finish and brazing properties.

Fatigueproof® is made by various combinations of mechanical working and thermal treatment which can include Niagara LaSalle's "e.t.d."® (elevated temperature drawing) process. This is a high strength steel bar that eliminates heat treating and secondary operations such as cleaning, straightening, secondary machining and inspections. All this, in combination with free machining and high strength, operates to lower end costs. Fatigueproof® induction hardens satisfactorily, but should be watched for quench cracks. Fatigueproof® is also comparator or roto tested.

Cold Finished - Rounds

Stock Lengths: 12 foot (Other lengths are available upon request)

| Diameter (inches) | Weight (lbs./ft.) | Weight per 12 Foot Bar | 1018 | 1045* | 1117 | 11L17 | 1141 | 1144 | Stressproof® A311, Class B** | 12L14 | 1215 | Fatigueproof® |
|-------------------|-------------------|------------------------|------|-------|------|-------|------|------|------------------------------|-------|------|---------------|
| 1/8 | 0.040 | 0.48 | ● | | | | | | | ● | | |
| 5/32 | 0.070 | 0.84 | ● | | | | | | | ● | | |
| 3/16 | 0.090 | 1.08 | ● | ● | | | | | | ● | ● | |
| 13/64 | 0.110 | 1.32 | | | | | | | | ● | | |
| 7/32 | 0.130 | 1.56 | ● | | | | | | | ● | ● | |
| 15/64 | 0.147 | 1.76 | | | | | | | | ● | | |
| 1/4 | 0.167 | 2.00 | ● | ● | ● | | | | ● | ● | ● | ● |
| 17/64 | 0.190 | 2.28 | | | | | | | | ● | | |
| 9/32 | 0.210 | 2.52 | ● | | | | | | | ● | ● | |
| 19/64 | 0.240 | 2.88 | | | | | | | | ● | | |
| 5/16 | 0.260 | 3.12 | ● | ● | ● | | | | ● | ● | ● | ● |
| 21/64 | 0.290 | 3.48 | | | | | | | | ● | | |
| 11/32 | 0.320 | 3.84 | ● | | | | | | | ● | ● | |
| 23/64 | 0.350 | 4.20 | | | | | | | | ● | | |
| 3/8 | 0.380 | 4.56 | ● | ● | ● | | ● | | ● | ● | ● | ● |
| 25/64 | 0.410 | 4.92 | | | | | | | | ● | | |
| 13/32 | 0.441 | 5.29 | ● | | | | | | | ● | ● | |
| 27/64 | 0.480 | 5.76 | | | | | | | | ● | | |
| 7/16 | 0.510 | 6.12 | ● | ● | ● | | | | ● | ● | ● | ● |
| 29/64 | 0.550 | 6.60 | | | | | | | | ● | | |
| 15/32 | 0.587 | 7.04 | ● | | | | | | | ● | ● | |
| 31/64 | 0.630 | 7.56 | | | | | | | | ● | | |
| 1/2 | 0.670 | 8.04 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 33/64 | 0.710 | 8.52 | | | | | | | | ● | | |
| 17/32 | 0.754 | 9.04 | ● | | | | | | | ● | ● | |
| 35/64 | 0.798 | 9.57 | | | | | | | | ● | | |
| 9/16 | 0.850 | 10.20 | ● | ● | ● | | ● | ● | ● | ● | ● | ● |
| 19/32 | 0.940 | 11.28 | ● | | ● | | | | | ● | ● | |
| 39/64 | 0.990 | 11.88 | | | | | | | | ● | | |
| 5/8 | 1.040 | 12.48 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 41/64 | 1.100 | 13.20 | | | | | | | | ● | | |
| 21/32 | 1.150 | 13.80 | ● | | | | | | | ● | ● | |
| 11/16 | 1.260 | 15.12 | ● | ● | ● | | | | | ● | ● | ● |
| 23/32 | 1.380 | 16.56 | ● | | | | | | | ● | ● | |
| 47/64 | 1.440 | 17.28 | | | | | | | | ● | | |
| 3/4 | 1.500 | 18.00 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

* 1045 is available in turned, ground and polished condition.

** Stressproof® A311 Class B is available in ground and polished condition starting at 3/8".

Continued on next page

Cold Finished - Rounds

Stock Lengths: 12 and 20 foot (Other lengths are available upon request)

| Diameter (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) | 1018 | 1045* | 1117 | 11L17 | 1141 | 1144 | Stressproof® A311, Class B** | 12L14 | 1215 | Fatigueproof® |
|-------------------|-------------------|---------------------|------|-------|------|-------|------|------|------------------------------|-------|------|---------------|
| 49/64 | 1.570 | 18.84 | | | | | | | | ● | | |
| 25/32 | 1.630 | 19.56 | ● | | | | | | | ● | ● | |
| 13/16 | 1.760 | 21.12 | ● | ● | ● | | ● | ● | ● | ● | ● | ● |
| 27/32 | 1.901 | 22.81 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 7/8 | 2.040 | 24.48 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 29/32 | 2.193 | 26.31 | ● | ● | ● | | | | | ● | ● | |
| 15/16 | 2.350 | 28.20 | ● | ● | ● | | ● | ● | ● | ● | ● | |
| 31/32 | 2.506 | 30.07 | ● | ● | ● | | ● | ● | ● | ● | ● | |
| 1 | 2.670 | 32.04 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 1-1/16 | 3.014 | 36.17 | ● | ● | ● | | ● | ● | ● | ● | ● | |
| 1-1/8 | 3.379 | 40.55 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 1-3/16 | 3.770 | 45.24 | ● | ● | ● | | ● | ● | ● | ● | ● | |
| 1-1/4 | 4.170 | 50.04 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 1-5/16 | 4.600 | 55.20 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 1-3/8 | 5.050 | 60.60 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 1-7/16 | 5.520 | 66.24 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 1-1/2 | 6.010 | 72.12 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 1-9/16 | 6.510 | 78.12 | ● | ● | ● | | ● | ● | ● | ● | ● | |
| 1-5/8 | 7.050 | 84.60 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 1-11/16 | 7.600 | 91.20 | ● | ● | ● | | ● | ● | ● | ● | ● | |
| 1-3/4 | 8.170 | 98.04 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 1-13/16 | 8.770 | 105.24 | ● | ● | ● | | ● | ● | ● | ● | ● | |
| 1-7/8 | 9.390 | 112.68 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 1-15/16 | 10.020 | 120.24 | ● | ● | ● | | ● | ● | ● | ● | ● | |
| 2 | 10.680 | 128.16 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 2-1/16 | 11.360 | 136.32 | ● | ● | ● | | ● | ● | ● | ● | ● | |
| 2-1/8 | 12.060 | 144.72 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 2-3/16 | 12.780 | 153.36 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 2-1/4 | 13.520 | 162.24 | ● | ● | ● | | ● | ● | ● | ● | ● | |
| 2-5/16 | 14.280 | 171.36 | ● | ● | ● | | | | | ● | ● | |
| 2-3/8 | 15.060 | 180.72 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 2-7/16 | 15.870 | 190.44 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 2-1/2 | 16.690 | 200.28 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 2-9/16 | 17.530 | 210.36 | ● | ● | ● | | ● | ● | ● | ● | ● | |
| 2-5/8 | 18.400 | 220.80 | ● | ● | ● | | ● | ● | ● | ● | ● | ● |
| 2-11/16 | 19.290 | 231.48 | ● | ● | ● | | | | | ● | ● | |

* 1045 is available in ground and polished condition. However, 1/2" to 7/8" diameter may be cold drawn, ground and polished or turned, ground and polished. Over 1" diameter is hot rolled, turned, ground and polished.

** Stressproof® A311 Class B is available in ground and polished condition.

Continued on next page

Cold Finished - Rounds

Stock Lengths: 12 and 20 foot (Other lengths are available upon request)

| Diameter (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) | 1018 ⁽¹⁾⁽²⁾ | 1045 ⁽¹⁾⁽²⁾⁽³⁾ | 1117 | 11L17 | 1141 | 1144 | Stressproof® A311, Class B ⁽⁴⁾ | 12L14 ⁽²⁾ | 1215 | Fatigueproof® |
|-------------------|-------------------|---------------------|------------------------|---------------------------|------|-------|------|------|---|----------------------|------|---------------|
| 2-3/4 | 20.19 | 242.28 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 2-13/16 | 21.12 | 253.44 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 2-7/8 | 22.07 | 264.84 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 2-15/16 | 23.04 | 276.48 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 3 | 24.03 | 288.36 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 3-1/16 | 25.05 | 300.60 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 3-1/8 | 26.08 | 312.96 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 3-3/16 | 27.13 | 325.54 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 3-1/4 | 28.21 | 338.52 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 3-3/8 | 30.42 | 365.04 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 3-7/16 | 31.55 | 378.60 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 3-1/2 | 32.71 | 392.49 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 3-5/8 | 35.09 | 421.08 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 3-3/4 | 37.55 | 450.36 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 3-7/8 | 40.10 | 481.20 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 3-15/16 | 41.40 | 496.80 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 4 | 42.73 | 512.76 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 4-1/8 | 45.44 | 545.28 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 4-1/4 | 48.23 | 578.76 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 4-3/8 | 51.11 | 613.32 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 4-7/16 | 52.58 | 630.91 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 4-1/2 | 54.07 | 648.84 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 4-5/8 | 57.12 | 685.44 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 4-3/4 | 60.25 | 723.00 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 4-7/8 | 63.46 | 761.52 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 4-15/16 | 65.10 | 781.20 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 5 | 66.75 | 801.12 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 5-1/8 | 70.14 | 841.68 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 5-1/4 | 73.59 | 883.20 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 5-7/16 | 78.94 | 947.28 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 5-1/2 | 80.77 | 969.24 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 5-3/4 | 88.29 | 1059.48 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 6 | 96.13 | 1153.56 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

(1) Sizes over 10" diameter are rough turned to +1/8 to +3/16" overside

(2) Sizes over 6" diameter are turned and polished. See tolerance chart at the end of this section.

(3) 1045 is available in ground and polished condition. However, 1/2" to 7/8" diameter may be cold drawn, ground and polished or turned, ground and polished. Over 1" diameter is hot rolled, turned, ground and polished.

(4) Stressproof® A311 Class B is available in ground and polished condition up through 4" diameter.

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Cold Finished - Rounds

Stock Lengths: 12 and 20 foot (Other lengths are available upon request)

| Diameter (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) | 1018 ⁽¹⁾ (2) | 1045 ⁽¹⁾ (2) (3) | 1117 | 11L17 | 1141 | 1144 | Stressproof® A311, Class B ⁽⁴⁾ | 12L14 ⁽²⁾ | 1215 | Fatigueproof® |
|-------------------|-------------------|---------------------|-------------------------|-----------------------------|------|-------|------|------|---|----------------------|------|---------------|
| 6-1/4 | 104.31 | 1314.99 | ● | ● | | | | | | ● | | |
| 6-1/2 | 112.82 | 1419.63 | ● | ● | | | | | | ● | | |
| 6-3/4 | 121.68 | 1528.28 | ● | ● | | | | | | ● | | |
| 7 | 130.84 | 1640.92 | ● | ● | | | | | | ● | | |
| 7-1/4 | 140.36 | 1757.59 | ● | ● | | | | | | | | |
| 7-1/2 | 150.21 | 1878.25 | ● | ● | | | | | | ● | | |
| 7-3/4 | 160.37 | 2002.92 | ● | ● | | | | | | | | |
| 8 | 170.90 | 2131.59 | ● | ● | | | | | | ● | | |
| 8-1/2 | 192.93 | 2400.96 | ● | ● | | | | | | ● | | |
| 9 | 216.30 | 2686.34 | ● | ● | | | | | | ● | | |
| 9-1/2 | 241.00 | 2987.74 | ● | ● | | | | | | | | |
| 10 | 266.87 | 3202.42 | ● | ● | | | | | | ● | | |
| 10-1/2 | 302.84 | 3634.08 | ● | | | | | | | | | |
| 11 | 332.29 | 3987.48 | ● | ● | | | | | | | | |
| 11-1/2 | 362.75 | 4353.00 | ● | | | | | | | | | |
| 12 | 394.54 | 4734.49 | ● | ● | | | | | | | | |
| 12-1/2 | 427.66 | 5131.92 | ● | ● | | | | | | | | |
| 13 | 462.12 | 5545.44 | ● | ● | | | | | | | | |
| 13-1/2 | 497.93 | 5975.16 | ● | ● | | | | | | | | |
| 14 | 535.05 | 6420.60 | ● | ● | | | | | | | | |
| 14-1/2 | 573.51 | 6882.12 | ● | ● | | | | | | | | |
| 15 | 613.31 | 7359.72 | ● | ● | | | | | | | | |
| 15-1/2 | 654.44 | 7853.28 | ● | ● | | | | | | | | |
| 16 | 696.91 | 8362.92 | ● | ● | | | | | | | | |
| 16-1/2 | 740.72 | 8888.64 | ● | ● | | | | | | | | |
| 17 | 785.85 | 9430.20 | ● | ● | | | | | | | | |
| 18 | 880.14 | 10561.68 | ● | ● | | | | | | | | |
| 19 | 979.76 | 11757.12 | ● | ● | | | | | | | | |
| 20 | 1084.73 | 13016.76 | ● | ● | | | | | | | | |
| 22 | 1310.67 | 15728.04 | ● | ● | | | | | | | | |
| 24 | 1557.98 | 18695.76 | ● | ● | | | | | | | | |
| 26 | 1826.64 | 21919.68 | ● | ● | | | | | | | | |
| 28 | 2116.67 | 25400.04 | ● | ● | | | | | | | | |

(1) Sizes over 10" diameter are rough turned to +1/8 to +3/16" overside

(2) Sizes over 6" diameter are turned and polished. See tolerance chart at the end of this section.

(3) 1045 is available in ground and polished condition. However, 1/2" to 7/8" diameter may be cold drawn, ground and polished or turned, ground and polished. Over 1" diameter is hot rolled, turned, ground and polished.

(4) Stressproof® A311 Class B is available in ground and polished condition up through 4" diameter.

Chrome Plated Steel Bars

Produced from a commercial grade of cold finished and hot rolled steel bars. After centerless grinding the bars are polished and then hard-chrome plated (usually up to .001"). The bar may be induction hardened to core depth of .050" minimum with a surface hardness of RC50 minimum. Primary application is for shafting in the manufacture of hydraulic cylinders.

| Diameter (inches) | Weight (lbs./ft.) | 1045 75K min. yield/.0005 min. plate | 1045/1050 100K min. yield/.0005 min. plate | 1045/1050 Induction Hardened 100K min. yield/.001 min. plate |
|-------------------|-------------------|---|---|--|
| 3/8 | .375 | | ● | |
| 1/2 | .668 | ● | | |
| 5/8 | 1.04 | ● | | |
| 3/4 | 1.50 | ● | | |
| 7/8 | 2.04 | ● | | |
| 1 | 2.67 | ● | | ● |
| 1-1/8 | 3.38 | ● | | ● |
| 1-1/4 | 4.17 | ● | | ● |
| 1-3/8 | 5.05 | ● | | ● |
| 1-1/2 | 6.01 | ● | | ● |
| 1-5/8 | 7.05 | ● | | |
| 1-3/4 | 8.18 | ● | | ● |
| 2 | 10.68 | ● | | ● |
| 2-1/4 | 13.52 | ● | | ● |
| 2-1/2 | 16.69 | ● | | ● |
| 2-3/4 | 20.19 | ● | | ● |
| 3 | 24.03 | ● | | ● |
| 3-1/4 | 28.20 | | | ● |
| 3-1/2 | 32.71 | ● | | ● |
| 3-3/4 | 37.55 | ● | | ● |
| 4 | 42.72 | ● | | ● |
| 4-1/4 | 48.23 | | | |
| 4-1/2 | 54.07 | ● | | |
| 5 | 66.75 | ● | | |

Standard Diameter Tolerances (Undersized Variation Only; +0.000")

0.750" to less than 2.500" dia. = -0.0015"

2.500" to less than 3.000" dia. = -0.0020"

3.000" to less than 4.000" dia. = -0.0030"

4.000" to 5.000" diameter = -0.0040"

Cold Finished - Squares

| Size (inches) | Weight (lbs./foot) | Weight (lbs./12 ft.) | Stock Lengths : 12 foot | | | |
|------------------|-----------------------|-------------------------|-------------------------|------|-------|------|
| | | | 1018 | 1045 | 12L14 | 1215 |
| 1/8 | 0.05 | 0.60 | ● | | | |
| 3/16 | 0.12 | 1.44 | ● | | ● | |
| 1/4 | 0.21 | 2.52 | ● | ● | ● | ● |
| 5/16 | 0.33 | 3.96 | ● | ● | ● | ● |
| 3/8 | 0.478 | 5.73 | ● | ● | ● | ● |
| 7/16 | 0.65 | 7.80 | ● | ● | ● | |
| 1/2 | 0.85 | 10.20 | ● | ● | ● | ● |
| 9/16 | 1.08 | 12.96 | ● | | ● | |
| 5/8 | 1.328 | 15.93 | ● | ● | ● | ● |
| 11/16 | 1.61 | 19.32 | ● | | ● | |
| 3/4 | 1.91 | 22.92 | ● | ● | ● | ● |
| 13/16 | 2.24 | 26.88 | ● | | ● | |
| 7/8 | 2.60 | 31.20 | ● | ● | ● | ● |
| 15/16 | 2.99 | 35.88 | ● | | ● | |
| 1 | 3.40 | 40.80 | ● | ● | ● | ● |
| 1-1/16 | 3.84 | 46.08 | ● | | ● | |
| 1-1/8 | 4.30 | 51.60 | ● | ● | ● | ● |
| 1-3/16 | 4.80 | 57.60 | ● | | ● | |
| 1-1/4 | 5.31 | 63.72 | ● | ● | ● | ● |
| 1-5/16 | 5.86 | 70.32 | ● | | | |
| 1-3/8 | 6.43 | 77.16 | ● | | ● | ● |
| 1-7/16 | 7.03 | 84.36 | | | | |
| 1-1/2 | 7.65 | 91.80 | ● | ● | ● | ● |
| 1-5/8 | 8.98 | 107.76 | ● | | ● | |
| 1-3/4 | 10.413 | 124.95 | ● | ● | ● | ● |
| 1-13/16 | 11.163 | 133.95 | ● | | | |
| 1-7/8 | 11.95 | 143.40 | ● | | | |
| 2 | 13.60 | 163.20 | ● | ● | ● | ● |
| 2-1/8 | 15.35 | 184.20 | | | | |
| 2-1/4 | 17.22 | 206.64 | ● | ● | ● | |
| 2-3/8 | 19.18 | 230.16 | ● | | | |
| 2-1/2 | 21.26 | 255.12 | ● | ● | ● | ● |
| 2-5/8 | 23.43 | 281.16 | ● | | | |
| 2-3/4 | 25.71 | 308.52 | | | ● | |
| 3 | 30.60 | 367.20 | ● | ● | ● | ● |
| 3-1/4 | 35.91 | 430.92 | ● | | | |
| 3-1/2 | 41.65 | 499.80 | ● | ● | ● | |
| 3-3/4 | 47.81 | 573.72 | ● | | | |
| 4 | 54.40 | 652.80 | ● | ● | ● | |
| 4-1/2 | 68.85 | 826.20 | ● | | | |
| 5 | 85.04 | 1020.48 | ● | | | |
| 5-1/2 | 102.80 | 1233.60 | ● | | | |
| 6 | 122.40 | 1468.80 | ● | | | |

Cold Finished - Hexagons

| Size (inches) | Weight (lbs./foot) | Weight (lbs./12 ft.) | Stock Lengths : 12 foot | | | | | | |
|------------------|-----------------------|-------------------------|-------------------------|------|------|-------|------|--------------|---------------|
| | | | 1018 | 1045 | 1117 | 12L14 | 1215 | Stressproof® | Fatigueproof® |
| 3/16 | 0.10 | 1.20 | | | | ● | | | |
| 1/4 | 0.183 | 2.19 | ● | | | ● | ● | | |
| 5/16 | 0.28 | 3.36 | ● | | | ● | ● | ● | |
| 3/8 | 0.41 | 4.92 | ● | | | ● | ● | ● | ● |
| 7/16 | 0.563 | 6.75 | ● | | | ● | ● | ● | ● |
| 1/2 | 0.73 | 8.76 | ● | ● | ● | ● | ● | ● | ● |
| 9/16 | 0.93 | 11.16 | ● | | | ● | ● | ● | |
| 5/8 | 1.15 | 13.80 | ● | | ● | ● | ● | ● | ● |
| 11/16 | 1.39 | 16.68 | ● | | | ● | ● | ● | |
| 3/4 | 1.66 | 19.92 | ● | ● | ● | ● | ● | ● | ● |
| 13/16 | 1.94 | 23.28 | ● | | | ● | ● | ● | |
| 7/8 | 2.25 | 27.00 | ● | ● | ● | ● | ● | ● | ● |
| 15/16 | 2.59 | 31.08 | ● | | | ● | ● | ● | |
| 1 | 2.94 | 35.28 | ● | ● | ● | ● | | ● | ● |
| 1-1/16 | 3.32 | 39.84 | ● | | | ● | ● | ● | |
| 1-1/8 | 3.72 | 44.65 | ● | ● | ● | ● | ● | ● | |
| 1-3/16 | 4.15 | 49.80 | ● | | | ● | ● | ● | |
| 1-1/4 | 4.60 | 55.20 | ● | ● | ● | ● | ● | ● | |
| 1-5/16 | 5.07 | 60.84 | | | | ● | ● | ● | |
| 1-3/8 | 5.56 | 66.72 | ● | ● | ● | ● | ● | ● | |
| 1-7/16 | 6.09 | 73.08 | | | | ● | ● | ● | |
| 1-1/2 | 6.63 | 79.56 | ● | ● | ● | ● | ● | ● | |
| 1-9/16 | 7.19 | 86.28 | | | | ● | ● | ● | |
| 1-5/8 | 7.78 | 93.36 | ● | | | ● | ● | ● | |
| 1-11/16 | 8.39 | 100.68 | | | | ● | | ● | |
| 1-3/4 | 9.00 | 108.00 | ● | ● | | ● | ● | ● | |
| 1-13/16 | 9.65 | 115.89 | | | | ● | | ● | |
| 1-7/8 | 10.35 | 124.20 | ● | ● | | ● | ● | ● | |
| 2 | 11.76 | 141.12 | ● | ● | | ● | ● | ● | |
| 2-1/8 | 13.30 | 159.60 | ● | | | ● | ● | ● | |
| 2-1/4 | 14.884 | 178.60 | ● | | | ● | ● | ● | |
| 2-3/8 | 16.58 | 198.96 | ● | | | ● | ● | ● | |
| 2-1/2 | 18.40 | 220.80 | ● | ● | | ● | ● | ● | |
| 2-5/8 | 20.29 | 243.48 | | | | ● | ● | ● | |
| 2-3/4 | 22.27 | 267.24 | ● | | | ● | ● | ● | |
| 2-7/8 | 24.30 | 291.60 | | | | ● | | ● | |
| 3 | 26.50 | 318.00 | ● | | | ● | ● | ● | |
| 3-1/4 | 31.10 | 373.20 | ● | | | ● | | ● | |
| 3-1/2 | 36.08 | 432.96 | ● | | | ● | | ● | |
| 3-3/4 | 41.34 | 496.08 | ● | | | ● | | ● | |
| 4 | 47.04 | 564.48 | ● | | | ● | | ● | |

Cold Finished - Flats

Stock Lengths: 12 foot (1018 and 11L17)

| Size (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|---------------|-------------------|---------------------|
| 1/8 x | | |
| 3/16 | 0.08 | 0.96 |
| 1/4 | 0.11 | 1.32 |
| 5/16 | 0.13 | 1.56 |
| 3/8 | 0.16 | 1.92 |
| 7/16 | 0.19 | 2.23 |
| 1/2 | 0.21 | 2.52 |
| 9/16 | 0.24 | 2.86 |
| 5/8 | 0.27 | 3.24 |
| 3/4 | 0.32 | 3.84 |
| 7/8 | 0.37 | 4.46 |
| 15/16 | 0.40 | 4.81 |
| 1 | 0.43 | 5.16 |
| 1-1/8 | 0.48 | 5.76 |
| 1-1/4 | 0.53 | 6.36 |
| 1-1/2 | 0.64 | 7.68 |
| 1-3/4 | 0.74 | 8.88 |
| 2 | 0.85 | 10.20 |
| 2-1/4 | 0.96 | 11.52 |
| 2-1/2 | 1.06 | 12.75 |
| 2-3/4 | 1.17 | 14.04 |
| 3 | 1.28 | 15.36 |
| 3-1/4 | 1.38 | 16.59 |
| 3-1/2 | 1.49 | 17.88 |
| 3-3/4 | 1.59 | 19.11 |
| 4 | 1.70 | 20.40 |
| 4-1/4 | 1.81 | 21.66 |
| 4-1/2 | 1.91 | 22.92 |
| 4-3/4 | 2.02 | 24.24 |
| 5 | 2.13 | 25.56 |
| 5-1/2 | 2.34 | 28.08 |
| 6 | 2.55 | 30.60 |
| 7 | 2.98 | 35.70 |
| 8 | 3.40 | 40.80 |
| 9 | 3.83 | 45.90 |
| 10 | 4.25 | 51.00 |
| 11 | 4.69 | 56.28 |
| 12 | 5.13 | 61.56 |

| Size (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|---------------|-------------------|---------------------|
| 3/16 x | | |
| 1/4 | 0.16 | 1.92 |
| 5/16 | 0.19 | 2.28 |
| 3/8 | 0.24 | 2.88 |
| 7/16 | 0.28 | 3.36 |
| 1/2 | 0.32 | 3.84 |
| 9/16 | 0.36 | 4.30 |
| 5/8 | 0.40 | 4.80 |
| 11/16 | 0.44 | 5.28 |
| 3/4 | 0.48 | 5.76 |
| 13/16 | 0.52 | 6.24 |
| 7/8 | 0.56 | 6.72 |
| 15/16 | 0.64 | 7.68 |
| 1 | 0.68 | 8.16 |

| Size (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|---------------------------|-------------------|---------------------|
| 3/16 x (Continued) | | |
| 1-1/8 | 0.72 | 8.62 |
| 1-1/4 | 0.80 | 9.60 |
| 1-3/8 | 0.88 | 10.52 |
| 1-1/2 | 0.96 | 11.52 |
| 1-5/8 | 1.04 | 12.48 |
| 1-3/4 | 1.12 | 13.44 |
| 1-7/8 | 1.20 | 14.34 |
| 2 | 1.28 | 15.36 |
| 2-1/8 | 1.36 | 16.28 |
| 2-1/4 | 1.44 | 17.20 |
| 2-1/2 | 1.59 | 19.08 |
| 2-3/4 | 1.76 | 21.03 |
| 3 | 1.92 | 22.92 |
| 3-1/4 | 2.07 | 24.86 |
| 3-1/2 | 2.24 | 26.77 |
| 3-3/4 | 2.39 | 28.68 |
| 4 | 2.56 | 30.60 |
| 4-1/4 | 2.71 | 32.52 |
| 4-1/2 | 2.88 | 34.42 |
| 4-3/4 | 3.03 | 36.34 |
| 5 | 3.20 | 38.28 |
| 5-1/2 | 3.51 | 42.07 |
| 6 | 3.84 | 45.96 |
| 7 | 4.47 | 53.55 |
| 8 | 5.11 | 61.20 |
| 9 | 5.74 | 68.85 |
| 10 | 6.38 | 76.50 |
| 11 | 7.01 | 84.15 |
| 12 | 7.65 | 91.80 |

| Size (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|---------------|-------------------|---------------------|
| 1/4 x | | |
| 5/16 | 0.26 | 3.12 |
| 3/8 | 0.32 | 3.84 |
| 7/16 | 0.37 | 4.44 |
| 1/2 | 0.43 | 5.16 |
| 9/16 | 0.48 | 5.76 |
| 5/8 | 0.53 | 6.36 |
| 3/4 | 0.64 | 7.68 |
| 7/8 | 0.74 | 8.88 |
| 1 | 0.85 | 10.20 |
| 1-1/8 | 0.96 | 11.52 |
| 1-1/4 | 1.06 | 12.72 |
| 1-3/8 | 1.17 | 14.04 |
| 1-1/2 | 1.28 | 15.36 |
| 1-5/8 | 1.38 | 16.56 |
| 1-3/4 | 1.49 | 17.88 |
| 1-7/8 | 1.59 | 19.08 |
| 2 | 1.70 | 20.40 |
| 2-1/4 | 1.91 | 22.92 |
| 2-1/2 | 2.13 | 25.56 |
| 2-3/4 | 2.34 | 27.96 |
| 3 | 2.55 | 30.60 |

| Size (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|--------------------------|-------------------|---------------------|
| 1/4 x (Continued) | | |
| 3-1/4 | 2.76 | 33.12 |
| 3-1/2 | 2.98 | 35.64 |
| 3-3/4 | 3.19 | 38.28 |
| 4 | 3.40 | 40.80 |
| 4-1/4 | 3.61 | 43.32 |
| 4-1/2 | 3.83 | 45.60 |
| 4-3/4 | 4.04 | 48.48 |
| 5 | 4.25 | 51.00 |
| 5-1/2 | 4.68 | 56.16 |
| 6 | 5.10 | 61.20 |
| 6-1/2 | 5.53 | 66.36 |
| 7 | 5.95 | 71.40 |
| 8 | 6.80 | 81.60 |
| 9 | 7.65 | 91.80 |
| 10 | 8.50 | 102.00 |
| 11 | 9.35 | 112.20 |
| 12 | 10.20 | 122.40 |
| 14 | 11.90 | 142.80 |
| 16 | 13.60 | 163.20 |

| Size (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|---------------|-------------------|---------------------|
| 5/16 x | | |
| 3/8 | 0.40 | 4.80 |
| 7/16 | 0.47 | 5.56 |
| 1/2 | 0.53 | 6.36 |
| 5/8 | 0.66 | 7.92 |
| 3/4 | 0.80 | 9.60 |
| 7/8 | 0.93 | 11.16 |
| 1 | 1.06 | 12.72 |
| 1-1/8 | 1.20 | 14.34 |
| 1-1/4 | 1.33 | 15.96 |
| 1-3/8 | 1.46 | 17.52 |
| 1-1/2 | 1.59 | 19.08 |
| 1-3/4 | 1.86 | 22.32 |
| 2 | 2.13 | 25.56 |
| 2-1/4 | 2.39 | 28.68 |
| 2-1/2 | 2.66 | 31.92 |
| 2-3/4 | 2.92 | 35.04 |
| 3 | 3.19 | 38.28 |
| 3-1/2 | 3.72 | 44.64 |
| 4 | 4.25 | 51.00 |
| 4-1/2 | 4.78 | 57.36 |
| 5 | 5.31 | 63.72 |
| 6 | 6.38 | 76.50 |
| 7 | 7.44 | 89.28 |
| 8 | 8.50 | 102.00 |
| 10 | 10.63 | 127.56 |
| 12 | 12.75 | 153.00 |

| Size (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|---------------|-------------------|---------------------|
| 3/8 x | | |
| 7/16 | 0.56 | 6.72 |
| 1/2 | 0.64 | 7.68 |
| 5/8 | 0.80 | 9.60 |
| 3/4 | 0.96 | 11.52 |

* Size available in 1018 & 11L17
 ** Sizes are stocked in 10 foot lengths

Continued on next page



Cold Finished - Flats

Stock Lengths: 12 foot (1018 and 11L17)

| Size (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|---------------|-------------------|---------------------|
|---------------|-------------------|---------------------|

| 3/8 x (Continued) | | |
|--------------------------|-------|--------|
| 7/8 | 1.12 | 13.44 |
| 1 | 1.28 | 15.36 |
| 1-1/8 | 1.43 | 17.16 |
| 1-1/4 | 1.59 | 19.08 |
| 1-3/8 | 1.75 | 21.00 |
| 1-1/2 | 1.91 | 22.92 |
| 1-5/8 | 2.07 | 24.84 |
| 1-3/4 | 2.23 | 26.76 |
| 1-7/8 | 2.39 | 28.69 |
| 2 | 2.55 | 30.60 |
| 2-1/4 | 2.87 | 34.44 |
| 2-1/2 | 3.18 | 38.16 |
| 2-3/4 | 3.51 | 42.12 |
| 3 | 3.82 | 45.84 |
| 3-1/4* | 4.14 | 49.68 |
| 3-1/2 | 4.46 | 53.52 |
| 3-3/4 | 4.78 | 57.36 |
| 4 | 5.10 | 61.20 |
| 4-1/4 | 5.42 | 65.01 |
| 4-1/2 | 5.70 | 68.40 |
| 4-3/4 | 6.06 | 72.67 |
| 5 | 6.38 | 76.56 |
| 5-1/2 | 7.01 | 84.12 |
| 6 | 7.65 | 91.80 |
| 6-1/2 | 8.29 | 99.48 |
| 7 | 8.93 | 107.16 |
| 8 | 10.20 | 122.40 |
| 9 | 11.48 | 137.76 |
| 10 | 12.75 | 153.00 |
| 11 | 14.03 | 168.30 |
| 12 | 15.30 | 183.60 |
| 14 | 18.00 | 216.00 |

| 7/16 x | | |
|---------------|------|--------|
| 1/2 | 0.74 | 8.88 |
| 9/16 | 0.84 | 10.08 |
| 5/8 | 0.93 | 11.16 |
| 3/4 | 1.12 | 13.44 |
| 7/8 | 1.30 | 15.60 |
| 1 | 1.49 | 17.88 |
| 1-1/4 | 1.86 | 22.32 |
| 1-1/2 | 2.23 | 26.76 |
| 1-3/4 | 2.60 | 31.20 |
| 2 | 2.98 | 35.76 |
| 2-1/4 | 3.35 | 40.20 |
| 2-1/2 | 3.72 | 44.64 |
| 3 | 4.46 | 53.52 |
| 3-1/2 | 5.21 | 62.52 |
| 4 | 5.95 | 71.40 |
| 4-1/2 | 6.70 | 80.40 |
| 5 | 7.44 | 89.25 |
| 6 | 8.93 | 107.16 |

| Size (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|---------------|-------------------|---------------------|
|---------------|-------------------|---------------------|

| 1/2 x | | |
|--------------|-------|--------|
| 9/16 | 0.96 | 11.52 |
| 5/8 | 1.06 | 12.72 |
| 3/4 | 1.28 | 15.36 |
| 7/8 | 1.49 | 17.88 |
| 1 | 1.70 | 20.40 |
| 1-1/8 | 1.91 | 22.92 |
| 1-1/4 | 2.13 | 25.56 |
| 1-3/8 | 2.34 | 28.08 |
| 1-1/2* | 2.55 | 30.60 |
| 1-5/8 | 2.77 | 33.24 |
| 1-3/4 | 2.98 | 35.76 |
| 2* | 3.40 | 40.80 |
| 2-1/8 | 3.61 | 43.34 |
| 2-1/4 | 3.83 | 45.96 |
| 2-1/2* | 4.25 | 51.00 |
| 2-3/4 | 4.68 | 56.16 |
| 3 | 5.10 | 61.20 |
| 3-1/4 | 5.53 | 66.36 |
| 3-1/2 | 5.95 | 71.40 |
| 3-3/4 | 6.38 | 76.56 |
| 4 | 6.80 | 81.60 |
| 4-1/4 | 7.23 | 86.76 |
| 4-1/2 | 7.65 | 91.80 |
| 4-3/4 | 8.07 | 96.84 |
| 5 | 8.50 | 102.00 |
| 5-1/2 | 9.35 | 112.20 |
| 5-3/4 | 9.78 | 117.30 |
| 6 | 10.20 | 122.40 |
| 6-1/2 | 11.05 | 132.60 |
| 7 | 11.90 | 142.80 |
| 8 | 13.60 | 163.20 |
| 9 | 15.30 | 183.60 |
| 10 | 17.00 | 204.00 |
| 11 | 18.70 | 224.40 |
| 12 | 20.40 | 244.80 |
| 14 | 23.80 | 288.00 |
| 16 | 27.20 | 326.40 |
| 18 | 30.60 | 367.20 |
| 20 | 34.00 | 408.00 |

| 9/16 x | | |
|---------------|------|-------|
| 5/8 | 1.20 | 14.34 |
| 3/4 | 1.44 | 17.16 |
| 1 | 1.91 | 22.92 |
| 1-1/4 | 2.39 | 28.68 |
| 1-1/2 | 2.87 | 34.44 |
| 2 | 3.83 | 45.96 |
| 2-1/2 | 4.78 | 57.38 |

| 5/8 x | | |
|--------------|------|-------|
| 3/4 | 1.59 | 19.08 |
| 7/8 | 1.86 | 22.32 |
| 1* | 2.13 | 25.56 |
| 1-1/8 | 2.39 | 28.68 |

| Size (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|---------------|-------------------|---------------------|
|---------------|-------------------|---------------------|

| 5/8 x (Continued) | | |
|--------------------------|-------|--------|
| 1-1/4 | 2.65 | 31.80 |
| 1-3/8 | 2.92 | 35.04 |
| 1-1/2* | 3.19 | 38.28 |
| 1-5/8 | 3.45 | 41.40 |
| 1-3/4 | 3.72 | 44.52 |
| 2* | 4.25 | 51.00 |
| 2-1/4 | 4.78 | 57.36 |
| 2-1/2 | 5.31 | 63.72 |
| 2-3/4 | 5.84 | 70.08 |
| 3* | 6.38 | 76.56 |
| 3-1/4 | 6.90 | 82.80 |
| 3-1/2 | 7.44 | 89.28 |
| 3-3/4 | 7.96 | 95.52 |
| 4 | 8.50 | 102.00 |
| 4-1/4 | 9.03 | 108.37 |
| 4-1/2 | 9.56 | 114.72 |
| 4-3/4 | 10.09 | 121.08 |
| 5 | 10.63 | 127.56 |
| 5-1/2 | 11.69 | 140.16 |
| 6 | 12.75 | 153.00 |
| 6-1/2 | 13.81 | 165.72 |
| 7 | 14.88 | 178.56 |
| 8 | 17.00 | 204.00 |
| 9 | 19.13 | 229.44 |
| 10 | 21.25 | 255.00 |
| 11 | 23.38 | 280.56 |
| 12 | 25.50 | 306.00 |
| 14 | 29.75 | 357.00 |

| 3/4 x | | |
|--------------|-------|--------|
| 7/8 | 2.23 | 26.76 |
| 1 | 2.55 | 30.60 |
| 1-1/8 | 2.87 | 34.44 |
| 1-1/4* | 3.19 | 38.16 |
| 1-3/8 | 3.51 | 42.12 |
| 1-1/2* | 3.83 | 45.84 |
| 1-5/8 | 4.14 | 49.68 |
| 1-3/4 | 4.46 | 53.52 |
| 2* | 5.10 | 61.20 |
| 2-1/4 | 5.70 | 68.40 |
| 2-1/2* | 6.38 | 76.56 |
| 2-3/4 | 7.01 | 84.12 |
| 3* | 7.65 | 91.80 |
| 3-1/4 | 8.29 | 99.48 |
| 3-1/2 | 8.93 | 107.04 |
| 3-3/4 | 9.56 | 114.72 |
| 4 | 10.20 | 122.40 |
| 4-1/4 | 10.84 | 130.05 |
| 4-1/2* | 11.48 | 137.64 |
| 4-3/4 | 12.11 | 145.32 |
| 5* | 12.75 | 153.00 |
| 5-1/2 | 14.03 | 168.36 |
| 6 | 15.30 | 183.60 |

* Size available in 1018 & 11L17

** Sizes are stocked in 10 foot lengths

Continued on next page



Cold Finished - Flats

Stock Lengths: 12 foot (1018 and 11L17)

| Size (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|---------------|-------------------|---------------------|
|---------------|-------------------|---------------------|

| 3/4 x (Continued) | | |
|--------------------------|--------------|---------------|
| 6-1/2 | 16.58 | 198.96 |
| 7 | 17.85 | 214.20 |
| 8 | 20.40 | 244.80 |
| 9 | 22.95 | 275.40 |
| 10 | 25.50 | 306.00 |
| 11 | 28.05 | 336.60 |
| 12 | 30.60 | 367.20 |
| 14 | 35.70 | 428.40 |
| 16** | 40.80 | 408.00 |
| 18** | 45.90 | 459.00 |
| 20** | 51.00 | 510.00 |

| 7/8 x | | |
|--------------|-------|--------|
| 1 | 2.98 | 35.76 |
| 1-1/8 | 3.35 | 40.20 |
| 1-1/4 | 3.72 | 44.64 |
| 1-3/8 | 4.09 | 49.08 |
| 1-1/2* | 4.46 | 54.24 |
| 1-3/4 | 5.21 | 62.52 |
| 2 | 5.90 | 70.80 |
| 2-1/4 | 6.69 | 80.40 |
| 2-1/2 | 7.44 | 89.28 |
| 2-3/4 | 8.18 | 98.16 |
| 3 | 8.93 | 107.16 |
| 3-1/2 | 10.41 | 124.92 |
| 4 | 11.90 | 142.80 |
| 4-1/2 | 13.39 | 160.68 |
| 5 | 14.88 | 178.44 |
| 5-1/2 | 16.36 | 196.35 |
| 6 | 17.85 | 214.20 |
| 6-1/2 | 19.34 | 232.05 |
| 7 | 20.83 | 249.96 |
| 8 | 23.80 | 285.60 |
| 9 | 26.78 | 321.36 |
| 10 | 29.75 | 357.00 |
| 12 | 35.70 | 428.40 |

| 1 x | | |
|------------|-------|--------|
| 1-1/8 | 3.83 | 45.96 |
| 1-1/4* | 4.25 | 51.00 |
| 1-3/8 | 4.68 | 56.04 |
| 1-1/2* | 5.10 | 61.20 |
| 1-5/8* | 5.53 | 66.36 |
| 1-3/4* | 5.95 | 71.40 |
| 1-7/8 | 6.38 | 76.56 |
| 2* | 6.80 | 81.60 |
| 2-1/4* | 7.65 | 91.80 |
| 2-1/2* | 8.50 | 102.00 |
| 2-3/4 | 9.35 | 112.20 |
| 3* | 10.20 | 122.40 |
| 3-1/4 | 11.05 | 132.60 |
| 3-1/2 | 11.90 | 142.80 |
| 3-3/4 | 12.75 | 153.00 |
| 4* | 13.60 | 163.20 |

| Size (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|---------------|-------------------|---------------------|
|---------------|-------------------|---------------------|

| 1 x (Continued) | | |
|------------------------|--------------|---------------|
| 4-1/4 | 14.45 | 173.40 |
| 4-1/2 | 15.30 | 183.60 |
| 4-3/4 | 16.15 | 193.80 |
| 5 | 17.00 | 204.00 |
| 5-1/2 | 18.70 | 224.40 |
| 6 | 20.40 | 244.80 |
| 6-1/2 | 22.10 | 265.20 |
| 7 | 23.80 | 285.60 |
| 7-1/2 | 25.50 | 306.00 |
| 8 | 27.20 | 326.40 |
| 9 | 30.60 | 367.20 |
| 10 | 34.00 | 408.00 |
| 11 | 37.40 | 448.80 |
| 12 | 40.80 | 489.60 |
| 14 | 47.60 | 571.20 |
| 16** | 54.40 | 544.00 |
| 18** | 61.20 | 612.00 |
| 20** | 68.00 | 680.00 |

| 1-1/8 x | | |
|----------------|-------|--------|
| 1-1/4 | 4.78 | 57.36 |
| 1-1/2 | 5.74 | 68.88 |
| 1-3/4 | 6.69 | 80.28 |
| 2 | 7.65 | 91.80 |
| 2-1/4 | 8.61 | 103.20 |
| 2-1/2 | 9.56 | 114.72 |
| 2-3/4 | 10.52 | 126.21 |
| 3 | 11.48 | 137.76 |
| 4 | 15.30 | 183.60 |
| 4-1/4 | 16.26 | 195.07 |
| 5 | 19.13 | 229.56 |
| 6 | 22.95 | 275.40 |
| 8 | 30.60 | 367.20 |

| 1-1/4 x | | |
|----------------|-------|--------|
| 1-3/8 | 5.84 | 70.08 |
| 1-1/2* | 6.38 | 77.88 |
| 1-5/8 | 6.91 | 82.92 |
| 1-3/4* | 7.44 | 88.80 |
| 1-7/8 | 7.97 | 95.63 |
| 2* | 8.50 | 102.00 |
| 2-1/4 | 9.58 | 114.99 |
| 2-1/2* | 10.63 | 127.56 |
| 2-3/4 | 11.69 | 140.16 |
| 3 | 12.75 | 153.00 |
| 3-1/4 | 13.81 | 165.72 |
| 3-1/2* | 14.88 | 178.56 |
| 3-3/4 | 15.94 | 191.28 |
| 4* | 17.00 | 204.00 |
| 4-1/2 | 19.13 | 229.56 |
| 5 | 21.25 | 255.00 |
| 5-1/2 | 23.38 | 280.56 |
| 6 | 25.50 | 306.00 |
| 7 | 29.70 | 356.40 |

| Size (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|---------------|-------------------|---------------------|
|---------------|-------------------|---------------------|

| 1-1/4 x (Continued) | | |
|----------------------------|-------|--------|
| 8 | 34.00 | 408.00 |
| 9 | 38.25 | 459.00 |
| 10 | 42.50 | 510.00 |
| 11 | 46.75 | 561.00 |
| 12 | 51.00 | 612.00 |
| 14 | 59.50 | 714.00 |

| 1-3/8 x | | |
|----------------|-------|--------|
| 1-1/2 | 7.01 | 84.12 |
| 2 | 9.35 | 112.20 |
| 3 | 14.03 | 168.36 |

| 1-1/2 x | | |
|----------------|---------------|----------------|
| 1-5/8 | 8.29 | 99.48 |
| 1-3/4* | 8.93 | 107.16 |
| 2* | 10.20 | 122.40 |
| 2-1/4 | 11.48 | 137.76 |
| 2-1/2* | 12.75 | 153.00 |
| 2-3/4 | 14.03 | 168.36 |
| 3* | 15.30 | 183.60 |
| 3-1/4 | 16.58 | 198.96 |
| 3-1/2* | 17.85 | 214.20 |
| 4* | 20.40 | 244.80 |
| 4-1/2* | 22.95 | 275.40 |
| 5* | 25.50 | 306.00 |
| 5-1/2 | 28.05 | 336.60 |
| 6 | 30.60 | 367.20 |
| 6-1/2 | 33.15 | 397.80 |
| 7 | 35.70 | 428.40 |
| 7-1/2 | 38.25 | 459.00 |
| 8 | 40.80 | 489.60 |
| 9 | 45.90 | 550.80 |
| 10 | 51.00 | 612.00 |
| 10-1/2 | 53.55 | 642.60 |
| 11** | 56.10 | 561.00 |
| 12 | 61.20 | 734.40 |
| 14 | 71.40 | 856.80 |
| 16** | 81.60 | 816.00 |
| 20** | 102.00 | 1020.00 |

| 1-5/8 x | | |
|----------------|-------|--------|
| 2 | 11.05 | 132.60 |
| 3 | 16.59 | 199.08 |
| 4 | 22.10 | 265.20 |
| 6 | 33.15 | 397.80 |

| 1-3/4 x | | |
|----------------|-------|--------|
| 2 | 11.90 | 142.80 |
| 2-1/4 | 13.30 | 159.60 |
| 2-1/2* | 14.88 | 178.50 |
| 2-3/4 | 16.36 | 196.80 |
| 3* | 17.85 | 214.80 |
| 3-1/4 | 19.34 | 232.08 |
| 3-1/2 | 20.83 | 249.60 |

* Size available in 1018 & 11L17
 ** Sizes are stocked in 10 foot lengths

Continued on next page



Cold Finished - Flats

Stock Lengths: 12 foot (1018 and 11L17)

| Size (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|---------------|-------------------|---------------------|
|---------------|-------------------|---------------------|

| 1-3/4 x (Continued) | | |
|----------------------------|-------|--------|
| 3-3/4 | 22.31 | 267.72 |
| 4 | 23.80 | 285.60 |
| 4-1/2 | 26.78 | 321.60 |
| 5* | 29.75 | 357.60 |
| 5-1/2 | 32.73 | 392.76 |
| 6 | 35.70 | 428.40 |
| 7 | 41.65 | 499.80 |
| 8 | 47.60 | 571.20 |
| 10 | 59.50 | 714.00 |
| 12 | 71.40 | 856.80 |

| 2 x | | |
|-------------|---------------|----------------|
| 2-1/4 | 15.30 | 183.60 |
| 2-1/2* | 17.00 | 204.00 |
| 2-3/4 | 18.70 | 224.40 |
| 3* | 20.40 | 244.80 |
| 3-1/4 | 22.10 | 265.20 |
| 3-1/2* | 23.80 | 285.60 |
| 3-3/4 | 25.50 | 306.00 |
| 4* | 27.20 | 326.40 |
| 4-1/4 | 28.90 | 347.00 |
| 4-1/2 | 30.60 | 367.20 |
| 5* | 34.00 | 408.00 |
| 5-1/2 | 37.40 | 448.80 |
| 6* | 40.80 | 489.60 |
| 6-1/2 | 44.20 | 530.40 |
| 7 | 47.60 | 571.20 |
| 8 | 54.40 | 652.80 |
| 9 | 61.20 | 734.40 |
| 10 | 68.00 | 816.00 |
| 11** | 74.80 | 748.00 |
| 12 | 81.60 | 979.20 |
| 14** | 95.20 | 952.00 |
| 16** | 108.80 | 1088.00 |
| 20** | 136.00 | 1360.00 |

| 2-1/4 x | | |
|----------------|-------|---------|
| 2-1/2 | 19.10 | 229.20 |
| 2-3/4 | 21.04 | 252.48 |
| 3 | 22.90 | 274.80 |
| 3-1/4 | 24.86 | 298.32 |
| 3-1/2 | 26.70 | 320.40 |
| 4 | 30.60 | 367.20 |
| 4-1/2 | 34.40 | 412.80 |
| 5 | 38.25 | 459.00 |
| 5-1/2 | 42.08 | 504.90 |
| 6 | 45.90 | 550.80 |
| 8 | 61.20 | 734.40 |
| 10 | 76.50 | 918.00 |
| 12 | 91.80 | 1101.60 |

| 2-1/2 x | | |
|----------------|-------|--------|
| 2-3/4 | 23.38 | 280.56 |
| 3* | 25.50 | 306.00 |

| Size (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|---------------|-------------------|---------------------|
|---------------|-------------------|---------------------|

| 2-1/2 x (Continued) | | |
|----------------------------|---------------|----------------|
| 3-1/2 | 29.75 | 357.00 |
| 4 | 25.50 | 408.00 |
| 4-1/2 | 38.25 | 459.00 |
| 5 | 42.50 | 510.00 |
| 5-1/2 | 46.75 | 561.00 |
| 6 | 51.00 | 612.00 |
| 7 | 59.50 | 714.00 |
| 8 | 68.00 | 816.00 |
| 8-1/2 | 72.25 | 867.00 |
| 9 | 76.50 | 918.00 |
| 10 | 85.00 | 1020.00 |
| 12 | 102.00 | 1224.00 |
| 14** | 119.00 | 1190.00 |
| 16** | 136.00 | 1360.00 |
| 20** | 170.00 | 1700.00 |

| 2-3/4 x | | |
|----------------|--------------|---------------|
| 3 | 28.05 | 336.60 |
| 3-1/2** | 32.72 | 327.25 |
| 4** | 37.40 | 374.00 |
| 6** | 56.10 | 561.00 |

| 3 x | | |
|----------------|---------------|----------------|
| 3-1/2 | 35.70 | 428.40 |
| 4* | 40.80 | 489.60 |
| 4-1/2 | 45.90 | 550.80 |
| 5 | 51.00 | 612.00 |
| 5-1/2** | 56.10 | 561.00 |
| 6 | 61.20 | 734.40 |
| 7 | 71.40 | 856.80 |
| 8 | 81.60 | 979.20 |
| 9** | 91.80 | 918.00 |
| 10 | 102.00 | 1224.00 |
| 12** | 122.40 | 1224.00 |
| 14** | 142.80 | 1428.00 |
| 16** | 163.20 | 1632.00 |
| 20** | 204.00 | 2040.00 |

| 3-1/2 x | | |
|----------------|---------------|----------------|
| 4** | 47.60 | 476.00 |
| 4-1/2** | 53.50 | 535.00 |
| 5 | 59.50 | 595.00 |
| 5-1/2** | 65.45 | 654.50 |
| 6** | 71.40 | 714.00 |
| 7** | 83.30 | 833.00 |
| 8** | 95.20 | 952.00 |
| 8-1/2** | 101.15 | 1011.50 |
| 9** | 107.10 | 1071.00 |
| 10** | 119.00 | 1190.00 |
| 12** | 142.80 | 1428.00 |
| 14** | 166.60 | 1666.00 |
| 16** | 190.40 | 1904.00 |
| 20** | 238.00 | 2380.00 |

| Size (inches) | Weight (lbs./ft.) | Weight (lbs./12 ft) |
|---------------|-------------------|---------------------|
|---------------|-------------------|---------------------|

| 4 x | | |
|----------------|---------------|----------------|
| 4-1/2** | 61.20 | 612.00 |
| 5** | 68.00 | 680.00 |
| 5-1/2** | 74.80 | 748.00 |
| 6** | 81.60 | 816.00 |
| 7** | 95.20 | 952.00 |
| 8** | 108.80 | 1088.00 |
| 9** | 122.40 | 1224.00 |
| 10** | 136.00 | 1360.00 |
| 12** | 163.20 | 1632.00 |
| 14** | 190.40 | 1904.00 |
| 16** | 217.60 | 2176.00 |
| 20** | 272.00 | 2720.00 |

| 4-1/2 x | | |
|----------------|---------------|----------------|
| 5** | 76.50 | 765.00 |
| 5-1/2** | 84.15 | 841.50 |
| 6** | 91.80 | 918.00 |
| 7** | 107.10 | 1071.00 |
| 8** | 122.40 | 1224.00 |
| 9** | 137.70 | 1377.00 |
| 10** | 153.00 | 1530.00 |
| 12** | 183.60 | 1836.00 |
| 14** | 214.20 | 2142.00 |
| 16** | 244.80 | 2448.00 |
| 20** | 306.00 | 3060.00 |

| 5 x | | |
|----------------|---------------|----------------|
| 5-1/2** | 93.50 | 935.00 |
| 6** | 102.00 | 1020.00 |
| 7** | 119.00 | 1190.00 |
| 8** | 136.00 | 1360.00 |
| 9** | 153.00 | 1530.00 |
| 10** | 170.00 | 1700.00 |
| 12** | 204.00 | 2040.00 |
| 14** | 238.00 | 2380.00 |
| 16** | 272.00 | 2720.00 |
| 20** | 340.00 | 3400.00 |

| 5-1/2 x | | |
|----------------|---------------|----------------|
| 6** | 112.20 | 1122.00 |

| 6 x | | |
|-------------|---------------|----------------|
| 7** | 143.64 | 1436.40 |
| 8** | 163.20 | 1632.00 |
| 9** | 183.60 | 1836.00 |
| 10** | 204.00 | 2040.00 |
| 12** | 244.80 | 2448.00 |
| 14** | 285.60 | 2856.00 |
| 16** | 326.40 | 3264.00 |
| 20** | 408.00 | 4080.00 |

* Size available in 1018 & 11L17

** Sizes are stocked in 10 foot lengths



Cold Finished Carbon Steel Bars

Standard Manufacturing Tolerances

Undersize Variation in Inches

| Shape & Size (inches) | Carbon to .28% Max. | Max. Carbon Over .28% up to .55% | *Stressproof® | Max. Carbon Over .55% or All Carbons Heat Treated | Fatigueproof® |
|------------------------------------|------------------------|--|---------------|--|---------------|
| Rounds | | | | | |
| (Cold Drawn or Turned & Polished) | | | | | |
| Up thru 1-1/2 | .002 | .003 | .004 | .005 | .005 |
| Over 1-1/2 thru 2-1/2 | .003 | .004 | .005 | .006 | .006 |
| Over 2-1/2 thru 4 | .004 | .005 | .006 | .007 | .006 |
| Over 4 thru 6 | .005 | .006 | --- | .008 | --- |
| Over 6 thru 8 | .006 | .007 | --- | .009 | --- |
| Over 8 thru 9 | .007 | .008 | --- | .010 | --- |
| Over 9 | .008 | .009 | --- | --- | --- |
| Hexagons | | | | | |
| Up thru 3/4 | .002 | .003 | .004 | .006 | --- |
| Over 3/4 thru 1-1/2 | .003 | .004 | .005 | .007 | --- |
| Over 1-1/2 thru 2-1/2 | .004 | .005 | .006 | .008 | --- |
| Over 2-1/2 thru 3-1/8 | .005 | .006 | --- | .009 | --- |
| Squares | | | | | |
| Up thru 3/4 | .002 | .004 | --- | .007 | --- |
| Over 3/4 thru 1-1/2 | .003 | .005 | --- | .008 | --- |
| Over 1-1/2 thru 2-1/2 | .004 | .006 | --- | .009 | --- |
| Over 2-1/2 thru 3-1/8 | .005 | .008 | --- | .011 | --- |
| Flats (Width)⁽¹⁾ | | | | | |
| Up thru 3/4 | .003 | .004 | --- | .008 | --- |
| Over 3/4 thru 1-1/2 | .004 | .005 | --- | .010 | --- |
| Over 1-1/2 thru 3 | .005 | .006 | --- | .012 | --- |
| Over 3 thru 4 | .006 | .008 | --- | .016 | --- |
| Over 4 thru 6 | .008 | .010 | --- | .020 | --- |
| Over 6 | .013 | .015 | --- | --- | --- |

* For Cold Drawn, Ground and Polished or Turned, Ground and Polished tolerances for Stressproof®, see below.

⁽¹⁾ Tolerances for Flats apply to thickness as well as width and include 16", 18" and 20" wide flats.

Note: Rough turned 1018 rounds are produced to an oversize tolerance of +1/8" to +3/16" oversize.

| Shape & Size (inches) | Cold Drawn Turned, Ground & Polished Includes Stressproof® | Bearing Shaft Quality (all undersize) |
|--------------------------|--|--|
| Rounds | | |
| Up thru 1-1/2 | .0010 | .0005/.0015 |
| Over 1-1/2 thru 2-1/2 | .0015 | .0005/.0020 |
| Over 2-1/2 thru 3 | .0020 | .0005/.0025 |
| Over 3 thru 4 | .0030 | .0005/.0035 |
| Over 4 thru 6 | .0040* | .0005/.0045 |
| Over 6 | .0050* | n/a |

* For nonresulphurized steels (steels specified to maximum sulphur limits under 0.08%) or for steels thermally treated, the tolerance is increased by .001"

Hot Rolled Carbon Bars

Grades and Descriptions

Hot rolled carbon bars, often referred to as "SBQ" or "special bar quality", are known for their superior mechanical properties over commodity grades of merchant bar. These products are produced to specific chemistry and mechanical properties ranges and often are used in engineered applications such as gears, shafts, axles covering markets such as automotive, heavy truck and agricultural equipment.

CQ or Commercial Quality Steel is ordinarily produced from a low carbon steel. Specific chemistry and mechanical properties are not inherit in CQ products.

A36 is produced to a 36 ksi min yield point. A mild carbon steel with many uses that works well for fabricating, welding, bending and cold forming.

1018 is a general purpose low carbon steel with good case hardening qualities. It is especially suited to cold forming and bending operations and has excellent weldability.


1044 is a medium carbon steel used when greater strength is needed. Has good heat treating properties when induction or flame hardened.

1045 is a medium carbon steel used extensively in induction hardening applications. This is not normally considered a screw machine steel and is only fair for brazing and welding. 1045 hot rolled can be used for applications requiring more strength and wear resistance than the low carbon mild steels can provide.

1117 is a low carbon, high manganese steel. Machinability is improved over 1018 and case hardening is deep and uniform, supported by a tough ductile core. A free machining grade with improved mechanical properties suitable for carburized parts.

1141 is a medium carbon, special quality, manganese steel with improved machinability and better heat treatment response. Surface hardness is deeper and more uniform than plain carbon steels.

1144 is a resulfurized carbon steel containing manganese and sulphur to provide a free-machining steel. It is recommended especially for high-production automatic machine products and machined parts requiring higher strength and wear resistance than is possible with lower carbon steels.

 **WARNING:** These products can potentially expose you to chemicals including Nickel, Chromium, Lead, Cobalt, Mercury and Beryllium, which are known to the state of California to cause cancer and/or birth defects or other reproductive harm. For more information, visit www.P65Warnings.ca.gov

Hot Rolled - Rounds**Stock Lengths: 20 foot** (A36, 1018, 1045, 1117, & 1144 grades available.)

| Diameter (inches) | Weight (lbs./foot) | CQ | A-36 | 1018 | 1045 | 1117 | 1141 | 1144 |
|-------------------|--------------------|----|------|------|------|------|------|------|
| 3/16 | 0.094 | ● | | | | | | |
| 1/4 | 0.167 | ● | ● | | | | | |
| 5/16 | 0.260 | ● | ● | | | | | |
| 3/8 | 0.375 | ● | ● | | | | | |
| 7/16 | 0.510 | ● | ● | | | | | |
| 1/2 | 0.670 | ● | ● | | | | | |
| 9/16 | 0.850 | | ● | | | | | |
| 5/8 | 1.040 | | ● | | | | | |
| 3/4 | 1.500 | | ● | | ● | | | |
| 7/8 | 2.050 | | ● | | ● | | | |
| 1 | 2.670 | | ● | | ● | | | |
| 1-1/8 | 3.380 | | ● | | ● | | | |
| 1-1/4 | 4.170 | | ● | | ● | | | |
| 1-3/8 | 5.050 | | ● | | ● | | | |
| 1-1/2 | 6.010 | | ● | | ● | | | |
| 1-5/8 | 7.050 | | ● | | ● | | | |
| 1-3/4 | 8.180 | | ● | | ● | | | |
| 1-7/8 | 9.390 | | ● | | ● | | | |
| 2 | 10.680 | | ● | | ● | | ● | |
| 2-1/8 | 12.234 | | ● | | ● | | | |
| 2-1/4 | 13.704 | | ● | | ● | | ● | |
| 2-3/8 | 15.258 | | ● | | ● | | | |
| 2-1/2 | 16.896 | | ● | | ● | | ● | |
| 2-5/8 | 18.724 | | ● | | ● | | | |
| 2-3/4 | 20.533 | | ● | | ● | | ● | |
| 2-7/8 | 22.426 | | ● | | ● | | | |
| 3 | 24.645 | | ● | | ● | ● | ● | ● |
| 3-1/8 | 26.717 | | | ● | ● | | | |
| 3-1/4 | 28.872 | | | ● | ● | ● | ● | ● |
| 3-3/8 | 31.111 | | | ● | ● | | | |
| 3-1/2 | 33.434 | | | ● | ● | ● | ● | ● |
| 3-5/8 | 36.070 | | | ● | ● | | | |
| 3-3/4 | 38.568 | | | ● | ● | ● | ● | ● |
| 4 | 43.814 | | | ● | ● | ● | ● | ● |

Continued on next page

Hot Rolled - Rounds

Stock Lengths: 20 foot (A36, 1018, 1045, 1117, & 1144 grades available.)

| Diameter (inches) | Weight (lbs./foot) | CQ | A-36 | 1018 | 1045 | 1117 | 1141 | 1144 |
|-------------------|--------------------|----|------|------|------|------|------|------|
| 4-1/8 | 46.562 | | | ● | ● | | | |
| 4-1/4 | 49.394 | | | ● | ● | ● | ● | ● |
| 4-3/8 | 52.310 | | | ● | ● | | | |
| 4-1/2 | 55.309 | | | ● | ● | ● | ● | ● |
| 4-5/8 | 58.685 | | | | ● | | | |
| 4-3/4 | 61.859 | | | ● | ● | ● | ● | ● |
| 5 | 68.459 | | | ● | ● | ● | ● | ● |
| 5-1/4 | 75.393 | | | ● | ● | ● | ● | ● |
| 5-1/2 | 82.661 | | | ● | ● | ● | ● | ● |
| 5-3/4 | 91.359 | | | ● | ● | ● | ● | ● |
| 6 | 99.343 | | | ● | ● | ● | ● | ● |
| 6-1/4 | 107.662 | | | ● | ● | ● | | ● |
| 6-1/2 | 116.315 | | | ● | ● | ● | ● | ● |
| 6-3/4 | 126.162 | | | ● | ● | ● | | ● |
| 7 | 135.515 | | | ● | ● | ● | ● | ● |
| 7-1/4 | 145.202 | | | ● | ● | | | ● |
| 7-1/2 | 155.224 | | | ● | ● | ● | ● | ● |
| 7-3/4 | 165.580 | | | ● | ● | | | ● |
| 8 | 176.271 | | | ● | ● | ● | ● | ● |
| 8-1/4 | 187.296 | | | ● | ● | ● | | ● |
| 8-1/2 | 199.737 | | | ● | ● | ● | ● | ● |
| 8-3/4 | 211.463 | | | ● | ● | | | ● |
| 9 | 223.522 | | | ● | ● | ● | ● | ● |
| 9-1/2 | 248.207 | | | ● | ● | ● | ● | ● |
| 9-3/4 | 263.735 | | | | ● | | | |
| 10 | 277.171 | | | ● | ● | ● | ● | ● |
| 10-1/2 | 305.044 | | | ● | ● | ● | ● | ● |
| 11 | 334.253 | | | ● | ● | ● | | ● |
| 11-1/2 | 364.796 | | | ● | ● | | | |
| 12 | 396.675 | | | ● | ● | ● | | ● |
| 12-1/2 | 429.889 | | | ● | ● | | | |
| 13 | 466.624 | | | | | | | |

Hot Rolled - Flats (A-36)

Stock Lengths: 20 foot

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| 1/4 x | |
| 1/2 | 0.430 |
| 5/8 | 0.530 |
| 3/4 | 0.640 |
| 7/8 | 0.750 |
| 1 | 0.850 |
| 1-1/4 | 1.060 |
| 1-3/8 | 1.170 |
| 1-1/2 | 1.280 |
| 1-5/8 | 1.380 |
| 1-3/4 | 1.490 |
| 2 | 1.700 |
| 2-1/4 | 1.910 |
| 2-1/2 | 2.130 |
| 2-3/4 | 2.330 |
| 3 | 2.550 |
| 3-1/4 | 2.760 |
| 3-1/2 | 2.980 |
| 3-3/4 | 3.190 |
| 4 | 3.400 |
| 4-1/4 | 3.610 |
| 4-1/2 | 3.830 |
| 5 | 4.250 |
| 5-1/2 | 4.680 |
| 6 | 5.100 |
| 6-1/2 | 5.530 |
| 7 | 5.950 |
| 7-1/2 | 6.375 |
| 8 | 6.800 |
| 9 | 7.650 |
| 10 | 8.500 |
| 11 | 9.350 |
| 11-1/2 | 9.870 |
| 12 | 10.200 |
| 5/16 x | |
| 1/2 | 0.530 |
| 3/4 | 0.797 |
| 1 | 1.060 |
| 1-1/4 | 1.330 |
| 1-1/2 | 1.590 |
| 1-3/4 | 1.860 |
| 2 | 2.130 |
| 2-1/4 | 2.390 |
| 2-1/2 | 2.660 |
| 2-3/4 | 2.920 |
| 3 | 3.190 |
| 3-1/2 | 3.720 |
| 4 | 4.250 |
| 4-1/2 | 4.780 |
| 5 | 5.310 |
| 5-1/2 | 5.840 |
| 6 | 6.380 |
| 7 | 7.440 |
| 8 | 8.500 |

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| 3/8 x | |
| 1/2 | 0.640 |
| 5/8 | 0.800 |
| 3/4 | 0.960 |
| 7/8 | 1.120 |
| 1 | 1.270 |
| 1-1/4 | 1.590 |
| 1-3/8 | 1.750 |
| 1-1/2 | 1.910 |
| 1-5/8 | 2.072 |
| 1-3/4 | 2.230 |
| 2 | 2.550 |
| 2-1/4 | 2.870 |
| 2-1/2 | 3.180 |
| 2-3/4 | 3.500 |
| 3 | 3.830 |
| 3-1/4 | 4.140 |
| 3-1/2 | 4.460 |
| 3-3/4 | 4.780 |
| 4 | 5.100 |
| 4-1/2 | 5.740 |
| 5 | 6.380 |
| 5-1/2 | 7.010 |
| 6 | 7.650 |
| 6-1/2 | 8.290 |
| 7 | 8.930 |
| 7-1/2 | 9.560 |
| 8 | 10.200 |
| 9 | 11.480 |
| 10 | 12.800 |
| 11 | 14.025 |
| 12 | 15.300 |
| 14 | 17.850 |
| 7/16 x | |
| 2 | 2.970 |
| 1/2 x | |
| 3/4 | 1.280 |
| 1 | 1.700 |
| 1-1/4 | 2.130 |
| 1-1/2 | 2.550 |
| 1-5/8 | 2.760 |
| 1-3/4 | 2.975 |
| 2 | 3.400 |
| 2-1/4 | 3.830 |
| 2-1/2 | 4.250 |
| 2-3/4 | 4.680 |
| 3 | 5.100 |
| 3-1/4 | 5.530 |
| 3-1/2 | 5.950 |
| 3-3/4 | 6.380 |
| 4 | 6.800 |
| 4-1/2 | 7.650 |
| 5 | 8.500 |
| 5-1/2 | 9.350 |

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| 1/2 x | |
| 6 | 10.200 |
| 6-1/2 | 11.060 |
| 7 | 11.900 |
| 7-1/2 | 12.750 |
| 8 | 13.600 |
| 9 | 15.300 |
| 10 | 17.000 |
| 11 | 18.700 |
| 12 | 20.400 |
| 14 | 23.800 |
| 5/8 x | |
| 1 | 2.130 |
| 1-1/4 | 2.660 |
| 1-1/2 | 3.190 |
| 1-3/4 | 3.720 |
| 2 | 4.250 |
| 2-1/4 | 4.780 |
| 2-1/2 | 5.310 |
| 2-3/4 | 5.840 |
| 3 | 6.380 |
| 3-1/4 | 6.910 |
| 3-1/2 | 7.440 |
| 4 | 8.500 |
| 4-1/2 | 9.560 |
| 5 | 10.630 |
| 5-1/2 | 11.690 |
| 6 | 12.750 |
| 7 | 14.870 |
| 8 | 17.000 |
| 9 | 19.130 |
| 10 | 21.250 |
| 11 | 23.375 |
| 12 | 25.500 |
| 14 | 29.750 |
| 3/4 x | |
| 1 | 2.550 |
| 1-1/8 | 2.870 |
| 1-1/4 | 3.190 |
| 1-1/2 | 3.830 |
| 1-3/4 | 4.460 |
| 2 | 5.100 |
| 2-1/4 | 5.740 |
| 2-1/2 | 6.380 |
| 2-3/4 | 7.010 |
| 3 | 7.650 |
| 3-1/4 | 8.290 |
| 3-1/2 | 8.930 |
| 4 | 10.200 |
| 4-1/2 | 11.480 |
| 5 | 12.750 |
| 5-1/2 | 14.030 |
| 6 | 15.300 |
| 6-1/2 | 16.575 |

Thicknesses 3/16" and under, see Hot Rolled Strip (pg. 1-20).

Continued on next page

Hot Rolled - Flats (A-36)

Stock Lengths: 20 foot

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| 3/4 x | |
| 7 | 17.900 |
| 8 | 20.400 |
| 9 | 22.950 |
| 10 | 25.500 |
| 11 | 28.050 |
| 12 | 30.600 |
| 14 | 35.700 |

| | |
|--------------|--------|
| 7/8 x | |
| 1-1/4 | 3.720 |
| 1-1/2 | 4.460 |
| 1-3/4 | 5.210 |
| 2 | 5.950 |
| 2-1/2 | 7.400 |
| 2-3/4 | 8.180 |
| 3 | 8.930 |
| 3-1/2 | 10.410 |
| 4 | 11.900 |
| 4-1/2 | 13.390 |
| 5 | 14.880 |
| 6 | 17.850 |
| 7 | 20.830 |
| 8 | 23.800 |

| | |
|------------|--------|
| 1 x | |
| 1-1/4 | 4.250 |
| 1-1/2 | 5.100 |
| 1-3/4 | 5.950 |
| 2 | 6.800 |
| 2-1/4 | 7.650 |
| 2-1/2 | 8.500 |
| 2-3/4 | 9.350 |
| 3 | 10.200 |
| 3-1/4 | 11.050 |
| 3-1/2 | 11.900 |
| 4 | 13.600 |
| 4-1/2 | 15.300 |
| 5 | 17.000 |
| 5-1/2 | 18.700 |
| 6 | 20.400 |
| 7 | 23.800 |
| 8 | 27.200 |
| 9 | 30.600 |
| 10 | 34.000 |
| 12 | 40.800 |
| 14 | 47.600 |

| | |
|----------------|--------|
| 1-1/8 x | |
| 2 | 7.650 |
| 3 | 11.480 |
| 4 | 15.300 |
| 5 | 19.130 |
| 6 | 22.950 |
| 8 | 30.600 |

| Size (inches) | Weight (lbs./foot) |
|----------------|--------------------|
| 1-1/4 x | |
| 1-1/2 | 6.380 |
| 1-3/4 | 7.440 |
| 2 | 8.500 |
| 2-1/4 | 9.560 |
| 2-1/2 | 10.630 |
| 2-3/4 | 11.690 |
| 3 | 12.750 |
| 3-1/4 | 13.810 |
| 3-1/2 | 14.880 |
| 4 | 17.000 |
| 4-1/2 | 19.130 |
| 5 | 21.250 |
| 5-1/2 | 23.380 |
| 6 | 25.500 |
| 7 | 29.750 |
| 8 | 34.000 |
| 10 | 42.500 |
| 12 | 51.000 |

| | |
|----------------|--------|
| 1-1/2 x | |
| 1-3/4 | 8.925 |
| 2 | 10.200 |
| 2-1/4 | 11.480 |
| 2-1/2 | 12.750 |
| 2-3/4 | 14.030 |
| 3 | 15.300 |
| 3-1/4 | 16.580 |
| 3-1/2 | 17.850 |
| 4 | 20.400 |
| 4-1/2 | 22.950 |
| 5 | 25.500 |
| 5-1/2 | 28.050 |
| 6 | 30.600 |
| 7 | 35.700 |
| 8 | 40.800 |
| 10 | 51.000 |
| 12 | 61.200 |

| | |
|----------------|--------|
| 1-3/4 x | |
| 2 | 11.900 |
| 2-1/2 | 14.880 |
| 3 | 17.850 |
| 3-1/2 | 20.830 |
| 4 | 23.800 |
| 4-1/2 | 26.790 |
| 5 | 29.750 |
| 5-1/2 | 32.730 |
| 6 | 35.700 |
| 7 | 41.600 |

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| 2 x | |
| 2-1/4 | 15.300 |
| 2-1/2 | 17.000 |
| 3 | 20.400 |
| 3-1/2 | 23.800 |
| 4 | 27.200 |
| 4-1/2 | 30.600 |
| 5 | 34.000 |
| 5-1/2 | 37.400 |
| 6 | 40.800 |
| 7 | 47.600 |
| 8 | 54.400 |
| 10 | 68.060 |
| 12 | 81.600 |

| | |
|----------------|--------|
| 2-1/4 x | |
| 3 | 22.950 |
| 4 | 30.600 |
| 5 | 38.250 |

| | |
|----------------|--------|
| 2-1/2 x | |
| 3 | 25.500 |
| 3-1/2 | 29.750 |
| 4 | 34.000 |
| 4-1/2 | 38.250 |
| 5 | 42.500 |
| 5-1/2 | 46.750 |
| 6 | 51.000 |

| | |
|------------|--------|
| 3 x | |
| 3-1/2 | 35.700 |
| 4 | 40.800 |
| 4-1/2 | 45.900 |
| 5 | 51.000 |
| 6 | 61.200 |

| | |
|----------------|--------|
| 3-1/2 x | |
| 4 | 47.600 |
| 5 | 51.000 |
| 6 | 71.400 |

| | |
|------------|--------|
| 4 x | |
| 4-1/2 | 61.200 |
| 5 | 68.000 |
| 6 | 81.600 |

Thicknesses 3/16" and under, see Hot Rolled Strip (pg. 1-20).

Hot Rolled - Strip

Stock Lengths: 20 foot

| B.W. Gauge and Size | Weight (lbs./foot) | Stock Lengths |
|---------------------|--------------------|---------------|
| 1/8 x | | |
| 1/2 | .210 | 20' |
| 5/8 | .270 | 20' |
| 3/4 | .320 | 20' |
| 7/8 | .370 | 20' |
| 1 | .430 | 20' |
| 1-1/4 | .530 | 20' |
| 1-3/8 | .590 | 20' |
| 1-1/2 | .640 | 20' |
| 1-3/4 | .740 | 20' |
| 2 | .850 | 20' |
| 2-1/4 | .960 | 20' |
| 2-1/2 | 1.060 | 20' |
| 2-3/4 | 1.170 | 20' |
| 3 | 1.280 | 20' |
| 3-1/2 | 1.490 | 20' |
| 4 | 1.700 | 20' |
| 4-1/2 | 1.910 | 20' |
| 5 | 2.130 | 20' |
| 6 | 2.550 | 20' |
| 8 | 3.400 | 20' |
| 10 | 4.250 | 20' |
| 12 | 5.130 | 20' |

| B.W. Gauge and Size | Weight (lbs./foot) | Stock Lengths |
|---------------------|--------------------|---------------|
| 3/16 x | | |
| 1/2 | .320 | 20' |
| 5/8 | .400 | 20' |
| 3/4 | .480 | 20' |
| 7/8 | .557 | 20' |
| 1 | .640 | 20' |
| 1-1/4 | .800 | 20' |
| 1-3/8 | .880 | 20' |
| 1-1/2 | .960 | 20' |
| 1-3/4 | 1.120 | 20' |
| 2 | 1.280 | 20' |
| 2-1/4 | 1.430 | 20' |
| 2-1/2 | 1.590 | 20' |
| 2-3/4 | 1.750 | 20' |
| 3 | 1.910 | 20' |
| 3-1/4 | 2.070 | 20' |
| 3-1/2 | 2.230 | 20' |
| 4 | 2.550 | 20' |
| 4-1/2 | 2.870 | 20' |
| 5 | 3.190 | 20' |
| 5-1/2 | 3.510 | 20' |
| 6 | 3.820 | 20' |
| 8 | 5.100 | 20' |
| 10 | 6.380 | 20' |
| 12 | 7.650 | 20' |

Note: Material is also available in 12' lengths and in Pickled & Oiled, please inquire with Alro Sales.

Hot Rolled - Flats (M1044)

Stock Lengths: 20 foot

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| 1/4 x | |
| 1 | 0.850 |
| 1-1/4 | 1.060 |
| 1-1/2 | 1.275 |
| 2 | 1.700 |

| 3/8 x | |
|--------------|-------|
| 1 | 1.280 |
| 1-1/4 | 1.590 |
| 1-1/2 | 1.910 |
| 2 | 2.550 |
| 2-1/2 | 3.180 |
| 3 | 3.830 |
| 4 | 5.100 |
| 5 | 6.380 |
| 6 | 7.650 |

| 1/2 x | |
|--------------|--------|
| 1 | 1.700 |
| 1-1/2 | 2.550 |
| 2 | 3.400 |
| 2-1/2 | 4.250 |
| 3 | 5.100 |
| 4 | 6.800 |
| 5 | 8.500 |
| 6 | 10.200 |

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| 5/8 x | |
| 2 | 4.250 |
| 2-1/2 | 5.310 |
| 8 | 17.000 |

| 3/4 x | |
|--------------|--------|
| 1-1/2 | 3.830 |
| 2 | 5.100 |
| 2-1/2 | 6.380 |
| 3 | 7.650 |
| 3-1/2 | 8.930 |
| 4 | 10.200 |
| 5 | 12.750 |
| 6 | 15.300 |

| 1 x | |
|------------|--------|
| 2 | 6.80 |
| 2-1/2 | 8.500 |
| 3 | 10.200 |
| 4 | 13.600 |
| 5 | 17.000 |
| 6 | 20.400 |

| Size (inches) | Weight (lbs./foot) |
|----------------|--------------------|
| 1-1/4 x | |
| 2 | 8.500 |
| 3-1/2 | 14.880 |
| 4 | 17.000 |
| 5 | 20.250 |
| 6 | 25.500 |
| 8 | 34.000 |

| 1-1/2 x | |
|----------------|--------|
| 2 | 10.200 |
| 2-1/2 | 12.750 |
| 3 | 15.300 |
| 4 | 20.400 |
| 5 | 25.500 |

| 2 x | |
|------------|--------|
| 3 | 20.400 |
| 4 | 27.200 |
| 5 | 34.000 |
| 6 | 40.800 |

Hot Rolled - Squares

Stock Lengths: 20 foot

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| 3/8 | 0.480 |
| 1/2 | 0.850 |
| 5/8 | 1.330 |
| 3/4 | 1.910 |
| 7/8 | 2.600 |
| 1 | 3.400 |
| 1-1/4 | 5.310 |

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| 1-1/2 | 7.650 |
| 1-3/4 | 10.400 |
| 2 | 13.600 |
| 2-1/4 | 17.210 |
| 2-1/2 | 21.300 |
| 2-3/4 | 25.700 |
| 3 | 30.600 |

| Size (inches) | Weight (lbs./foot) |
|---------------|--------------------|
| 3-1/2 | 41.700 |
| 4 | 54.400 |
| 4-1/2 | 68.900 |
| 5 | 85.000 |
| 6 | 122.400 |

Concrete Reinforcing Bars

Material Available in Grades 40 and 60

Stock Lengths: 20 foot and 40 foot

| Size (inches) | Bar Number | Weight (lbs./foot) |
|---------------|------------|--------------------|
| 3/8 Rd. | 3 | .376 |
| 1/2 Rd. | 4 | .668 |
| 5/8 Rd. | 5 | 1.043 |
| 3/4 Rd. | 6 | 1.502 |
| 7/8 Rd. | 7 | 2.044 |
| 1 Rd. | 8 | 2.670 |
| 1-1/8 Rd. | 9 | 3.379 |

Round bars equal in cross sectional area to the standard square sizes indicated



Concrete Reinforcing Mesh

6" x 6" x 6 Gauge Wire Mesh - 8' x 15' sheets

6" x 6" x 10 Gauge Wire Mesh - 8' x 15' sheets



Hot Rolled Steel Bars Tolerances

Permissible Variations in Cross Section for Hot-Wrought Round, Square and Round-Cornered Square Bars of Steel

| Specified Sizes (inches) | Permissible Variation From Specified Size, In. ^A | | Out-of-Round or Out-of-Square ^B (inches) |
|--------------------------|---|-------|---|
| | Over | Under | |
| 7/16 thru 5/8 | 0.007 | 0.007 | 0.010 |
| Over 5/8 thru 7/8 | 0.008 | 0.008 | 0.012 |
| Over 7/8 thru 1 | 0.009 | 0.009 | 0.013 |
| Over 1 thru 1-1/8 | 0.010 | 0.010 | 0.015 |
| Over 1-1/8 thru 1-1/4 | 0.011 | 0.011 | 0.016 |
| Over 1-1/4 thru 1-3/8 | 0.012 | 0.012 | 0.018 |
| Over 1-3/8 thru 1-1/2 | 0.014 | 0.014 | 0.021 |
| Over 1-1/2 thru 2 | 1/64 | 1/64 | 0.023 |
| Over 2 thru 2-1/2 | 1/32 | 0 | 0.023 |
| Over 2-1/2 thru 3-1/2 | 3/64 | 0 | 0.035 |
| Over 3-1/2 thru 4-1/2 | 1/16 | 0 | 0.046 |
| Over 4-1/2 thru 5-1/2 | 5/64 | 0 | 0.058 |
| Over 5-1/2 thru 6-1/2 | 1/8 | 0 | 0.070 |
| Over 6-1/2 thru 8-1/4 | 5/32 | 0 | 0.085 |
| Over 8-1/4 thru 9-1/2 | 3/16 | 0 | 0.100 |
| Over 9-1/2 thru 10 | 1/4 | 0 | 0.120 |

^A Steel bars are regularly cut to length by shearing or hot sawing, which can cause end distortion resulting in those portions of the bar being outside the applicable size tolerance. When this end condition is objectionable, a machine cut end should be considered.

^B Out-of-round is the difference between the maximum and minimum diameters of the bar, measured at the same transverse cross section. Out-of-square section is the difference in perpendicular distance between opposite faces, measured at the same transverse cross section.

Square Edge and Round Edge Flats

Permissible Variations in Thickness and Width for Hot-Wrought Square Edge and Round Edge Flat Bar

| Specified Widths (inches) | Permissible variations in thickness, for thickness given over and under in ^B | | | | | | | | |
|---------------------------|---|-------------------|-----------------|-----------------|-----------------|-----------------|-----------|-------------------|--------|
| | 0.203 up to 0.230 | 0.233 up to 0.250 | 0.25 up to 0.50 | 0.50 up to 1.00 | 1.00 up to 2.00 | 2.00 up to 3.00 | Over 3.00 | Widths Over Under | |
| Up thru 1 | .007 | .007 | .008 | .010 | | | | 1/64 | 1/64 |
| Over 1 thru 2 | .007 | .007 | .012 | .015 | 1/32 | | | 1/32 | 1/32 |
| Over 2 thru 4 | .008 | .008 | .015 | .020 | 1/32 | 3/64 | 3/64 | 1/16 | 1/32 |
| Over 4 thru 6 | .009 | .009 | .015 | .020 | 1/32 | 3/64 | 3/64 | 3/32 | 1/16 |
| Over 6 thru 8 | * | .015 | .018 | .025 | 1/32 | 3/64 | 1/16 | 1/8 | 3/32** |

^A When a square is held against a face and an edge of a square edge flat bar, the edge shall not deviate by more than 3° or 5% of the thickness.

^B Steel bars are regularly cut to length by shearing or hot sawing, which can cause end distortion resulting in those portions of the bar being outside the applicable size tolerance. When this end condition is objectionable, a machine cut end should be considered.

* Flats over 6 to 8 in., incl, in width, are not available as hot-wrought steel bars in thickness under 0.230 in.

*Straightness Tolerances: Steel Bars

Hot Rolled Bars

Straightness is a perishable tolerance; therefore, reasonable care in handling and storage should be taken to avoid bending the bars. Deviation from straightness is measured by placing the bar on a level table so that the arc or deviation from straightness is horizontal, and the depth of the arc is measured with a steel scale and a straight edge. A tightly-stretched string can be used as a substitute for a steel scale.

| | |
|--|--|
| Hot Rolled Bars | 1/4" in any 5 ft. or $1/4 \times \frac{\text{no. of ft. of length}}{5}$ inches |
| Hot Rolled, Thermally Treated | 1/4" in any 5 ft. or $1/4 \times \frac{\text{no. of ft. of length}}{5}$ inches |

* There is not a published flatness or straightness tolerance for flat bars.

*Straightness Tolerances: Steel Bars

Cold Finished Bars

| Form Size | Length (in Feet) | Maximum Curvature (Depth of arc in inches) |
|--|------------------|--|
| Rounds | | |
| Less than .28 Carbon | | |
| Less than 5/8" | Less than 15' | 1/8" in any 10' portion of the total length |
| Less than 5/8" | 15' and over | 1/8" in any 10' portion of the total length |
| 5/8" and over | Less than 15' | 1/16" in any 10' portion of the total length |
| 5/8" and over | 15' and over | 1/8" in any 10' portion of the total length |
| .28 Carbon and over and all heat treated material | | |
| Less than 5/8" | Less than 15' | 3/16" in any 10' portion of the total length |
| Less than 5/8" | 15' and over | 5/16" in any 10' portion of the total length |
| 5/8" and over | Less than 15' | 1/8" in any 10' portion of the total length |
| 5/8" and over | 15' and over | 3/16" in any 10' portion of the total length |
| Hexagons & Squares | | |
| Less than .28 Carbon | | |
| Less than 5/8" | Less than 15' | 3/16" in any 10' portion of the total length |
| Less than 5/8" | 15' and over | 5/16" in any 10' portion of the total length |
| 5/8" and over | Less than 15' | 1/8" in any 10' portion of the total length |
| 5/8" and over | 15' and over | 3/16" in any 10' portion of the total length |
| .28 Carbon and over and all heat treated material | | |
| Less than 5/8" | Less than 15' | 1/4" in any 10' portion of the total length |
| Less than 5/8" | 15' and over | 3/8" in any 10' portion of the total length |
| 5/8" and over | Less than 15' | 3/16" in any 10' portion of the total length |
| 5/8" and over | 15' and over | 1/4" in any 10' portion of the total length |

* There is not a published flatness or straightness tolerance for flat bars.